Trends in global inequality using a new integrated dataset

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Global inequality: literature

- **Trends (mainly Gini using hh surveys): increase + mixed + decline**
  - Anand and Segal (2008), 8 studies 2002-06:
    - Increase before 1970/80 + mixed 1980-90/95 + decline 1990-2000.
  - Bourguignon and Morrisson (2002); Bourguignon (2015, 2019):
    - Long-term increasing inequality until 1980 + stagnation 1980-90 + decline afterwards.
  - Lakner and Milanovic (2016); World Bank (2016), Milanovic (2021):
    - Decline 1988-2008-2013.

Global inequality: sensitivity

- Limited robustness to some other inequality indices, reflecting a different **distributive sensitivity** (Lakner and Milanovic, 2016; Bourguignon, 2015).
- Inequality is higher and the trend may be different after correcting for **incomes at the top:**
  - **Survey data**: Lakner and Milanovic (2016); Milanovic (2021); Jordá and Niño-Zarazúa (2019).
  - **Mixed data, WID**: WIL (2018, 2021), Chancel and Piketty (2021).
- Strongly sensitive to adopting an **absolute inequality** approach (Ravallion 2004, 2018, 2021; Niño-Zarazúa et al. 2017).

Contribution

- **New integrated standardized dataset** on global inequality:
  - Percentile level, with annual information since 1950.
  - Based on HH surveys: (companion dataset of the) **World Income Inequality Database (WIID).**
- **Broad overview** of trends in global inequality:
  - more detailed, systematic,
  - and comprehensive analysis (overall and between/within-country).

Contribution

- **Consistent** with previous literature (survey data) but significantly improving **time and geographical coverage**.
  - Entire **distribution** → sensitivity analysis to **different inequality approaches**:
    - **Absolute** and **relative** inequality.
    - **Distributive pattern** (i.e., focus on the bottom, middle, or top).
    - No correction so far, but allows for studying the impact of correcting **top incomes** [robustness]
- Quantifying the **contribution of countries** to trends (overall and its components).

World Income Inequality Database (WIID)

- At **UNU-WIDER** since 2000 (← **Deininger and Squire 1996**), regularly updated.
  - Widely used to analyze **Global Inequality**.
- **Sources**: PovcalNet (now PIP), LIS, Eurostat, SEDLAC, ECLAC, UNICEF, OECD, other IO, NSA, research studies, earliest compilations.
  - Scattered information for **200 entities** presented in an organized way.
    - **Gini** + **shares** (D, Q, b/t 5%), mean, median.
    - + **other indices** recently added: Entropy, Atkinson, Palma, S80S20.
- **Rich** information (20k+ data points): Multiple and heterogeneous **options** per country/year (measure of resources, equivalence scale, source, …).

WIID Companion: Within-country distribution

- **Selection** of 'best' country series (referred to various sources and welfare concepts).
  - Priority to LIS, Eurostat, ECLAC/SEDLAC;
  - As well as to national-level, per capita net income, …
- Estimation of **percentile distribution** from available aggregate income shares (D, Q, bottom/top 5% → Shorrocks and Wan 2009 algorithm).

WIID Companion: Within-country distribution

- **Integration and Standardization** of various series into one new single series of the distribution of **national net income per capita**.
  - Integrated series: Chaining **overlapping** percentile series within countries.
  - Standardizing by exploiting existing **empirical relationship** among the income distribution of different welfare concepts in the LIS sample.
    - Adjustment based on info from same country or similar (same country global region/ country income group)
- Several **relative and absolute inequality measures**.

WIID Companion: Global distribution

- **Balanced panel** of **all countries** (defined as they exist today, 193 UN countries + 16 territories)
- From **1950 to 2020** (→ additional annual updates).
- Country per capita income: **GDP 2017 US PPP**

  → WDI (WB) + Maddison project + PWT [robustness]

  → IMF GDP 2021 projections

WIID Companion: Global distribution

- Completing missing **country/year** observations with:

  Interpolation between survey years,

  Extrapolation (constant distribution) before first/after last survey

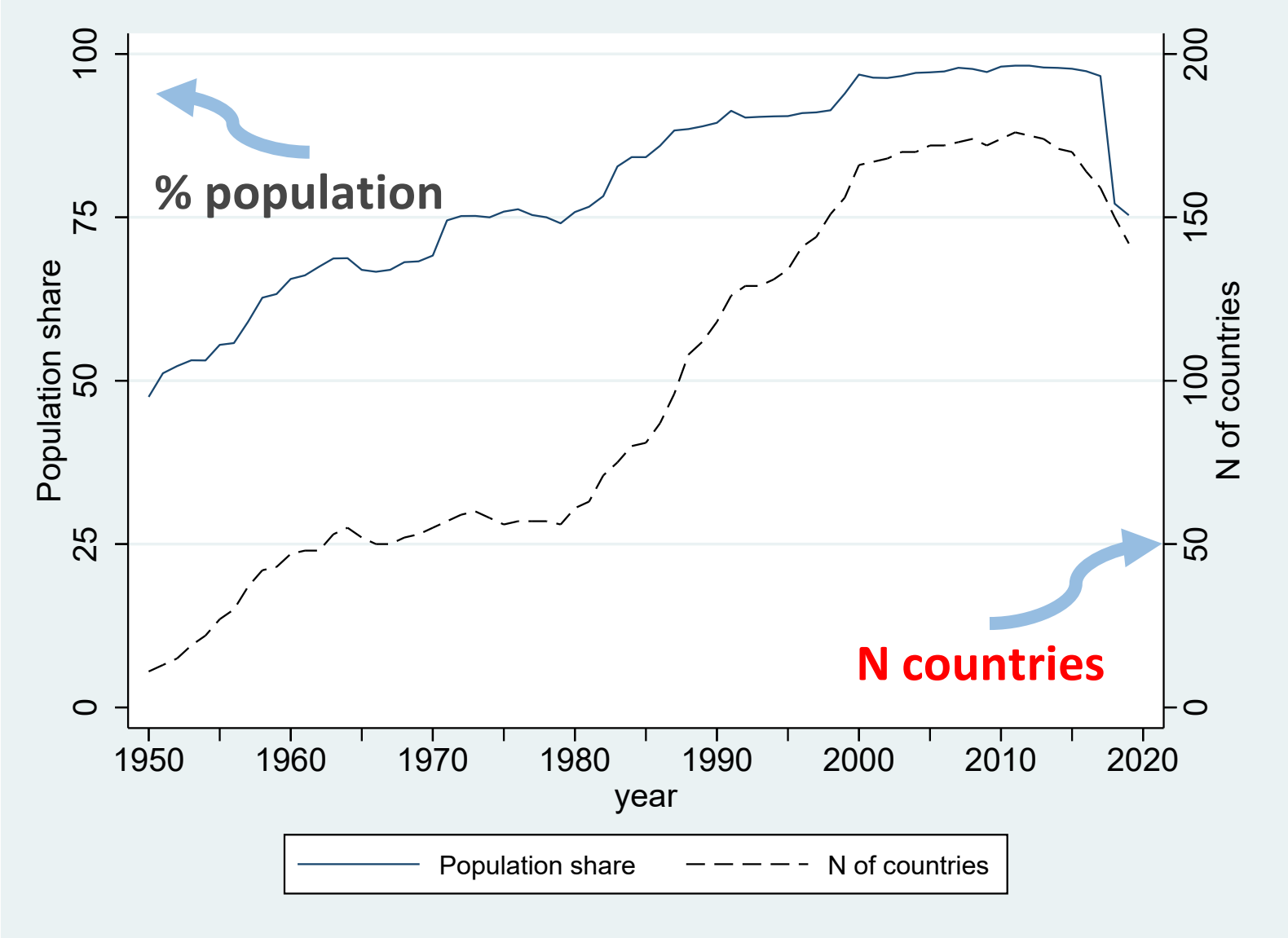
  + a few **imputations** (Libya, Qatar, Saudi Arabia, and microstates)

- **World and regional percentile distribution**

  → several relative and absolute inequality **measures** and income share **ratios**.

N of countries and **population share**

with a survey in each bin year using a +/-5-year bandwidth



Higher density of surveys **after 1980s/1990s: 1 survey falling at most 5 years away** from the target year for **50+% of world population since 1950**, near 100% in 2000s (falling at the end, e.g., India).

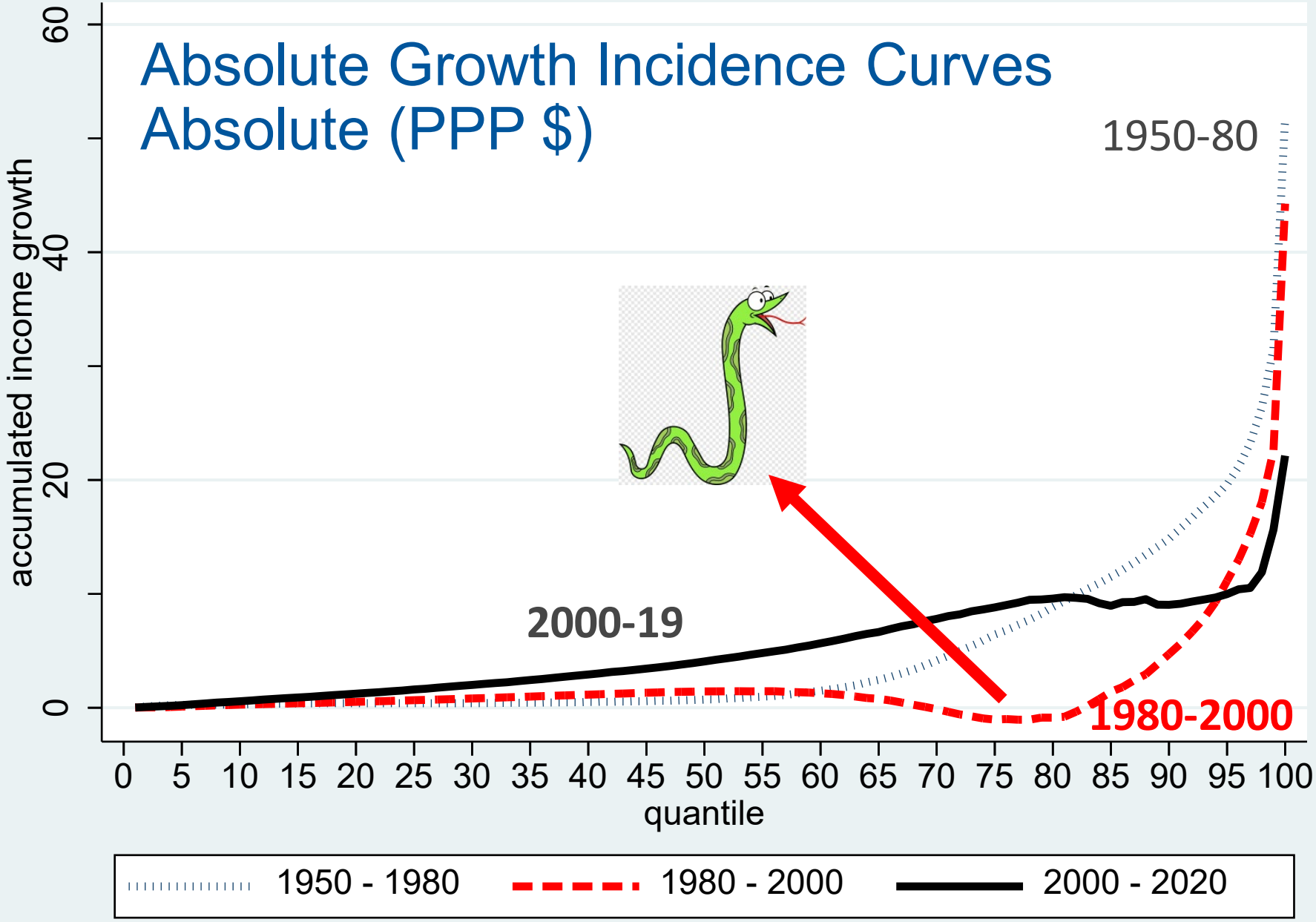
WIID Companion Datasets

- **Open access:** www.wider.unu.edu/wiid (current version: 30 June 2022, update soon)
- **Transparent:** fully documented
  - Technical notes describing the construction.
  - Replicable from original WIID (Stata codes + auxiliary datasets).
  - All country/year observations are traceable:
    - Type: survey, interpolated, extrapolated, imputed.
    - Original characteristics: source, resources, equivalence scale, coverage, survey, …

Trend in absolute inequality

- ***Translation invariance***: larger **dollar increases** of lower incomes to reduce inequality (in the context of economic growth).

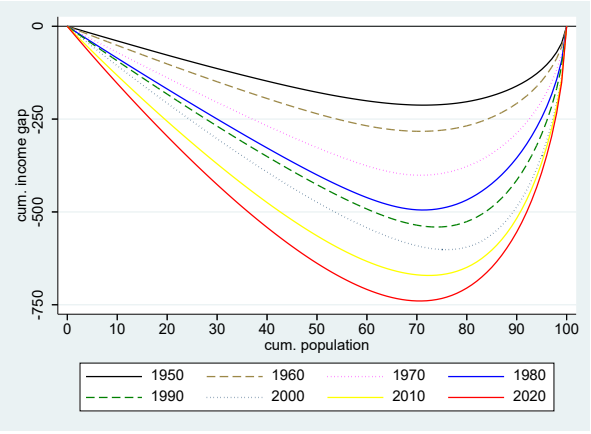
Absolute Growth Incidence Curves
Absolute (PPP $)

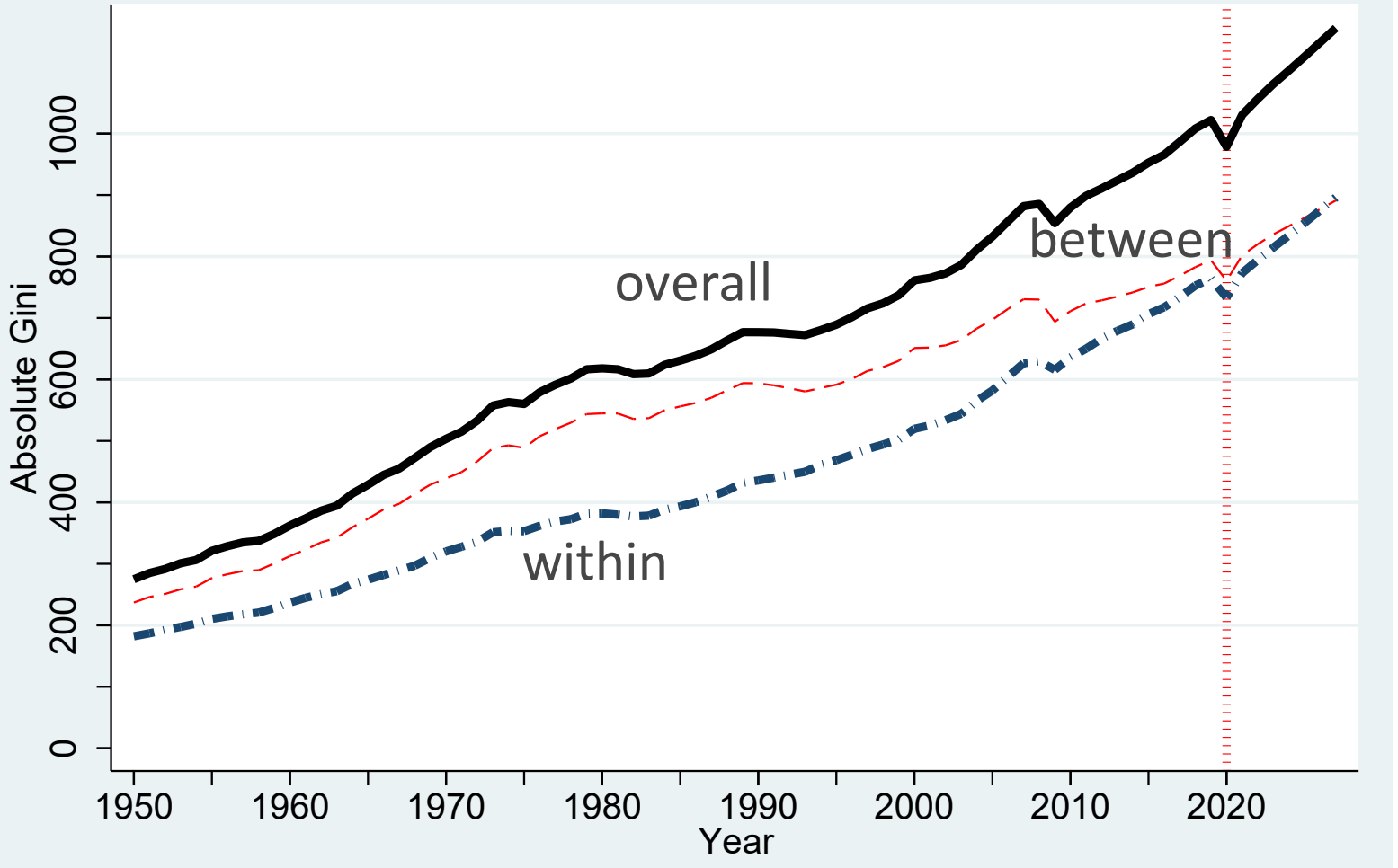


Absolute inequality

Within → Gradín and Oppel (2021)

Absolute Gini



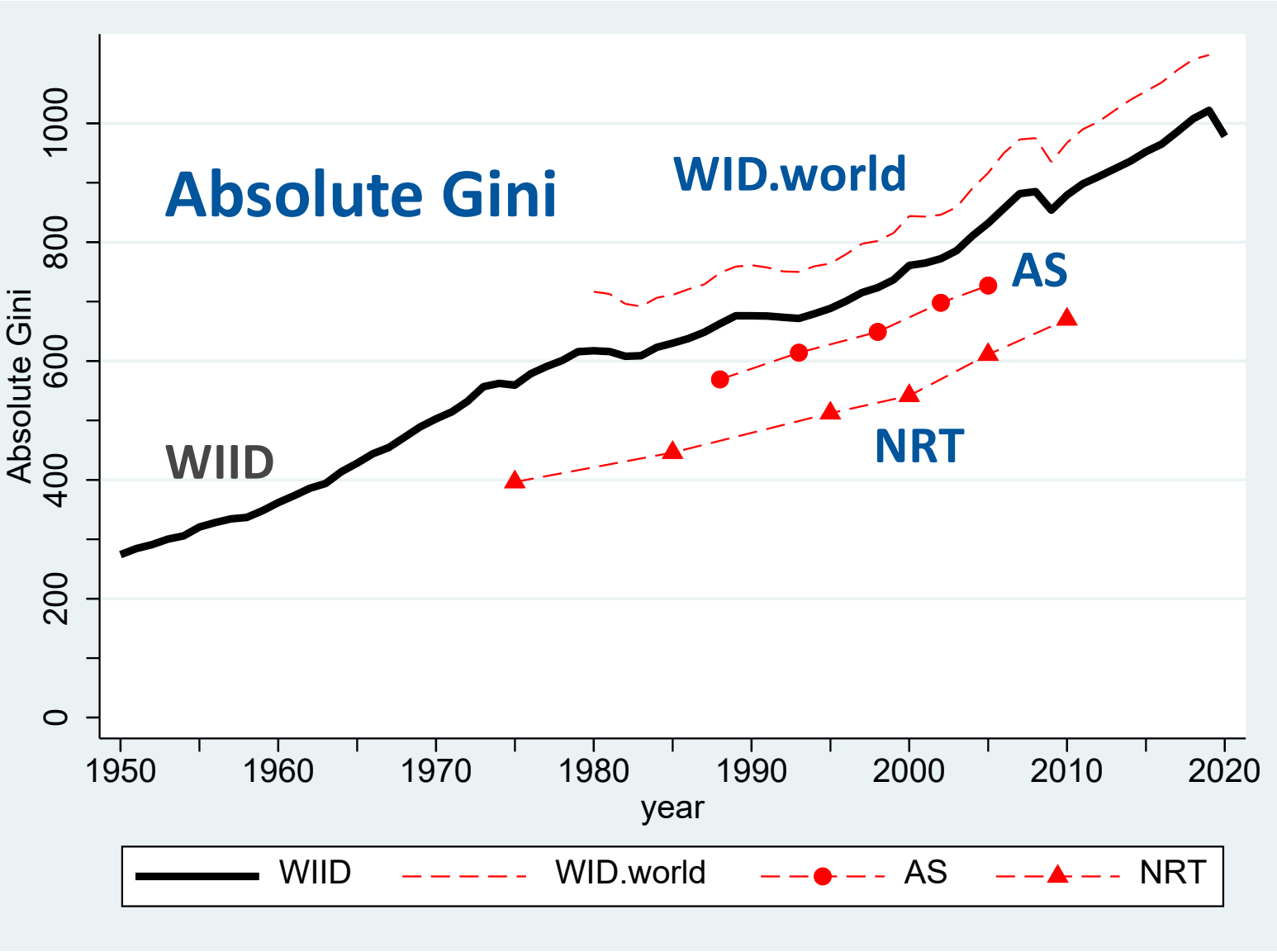


Increased over the entire period (1950+) (except recessions, 1974-75, 1980-82, 2008-09).

General → overall and between- and within countries.

Lorenz dominance (e.g., each 10 years).

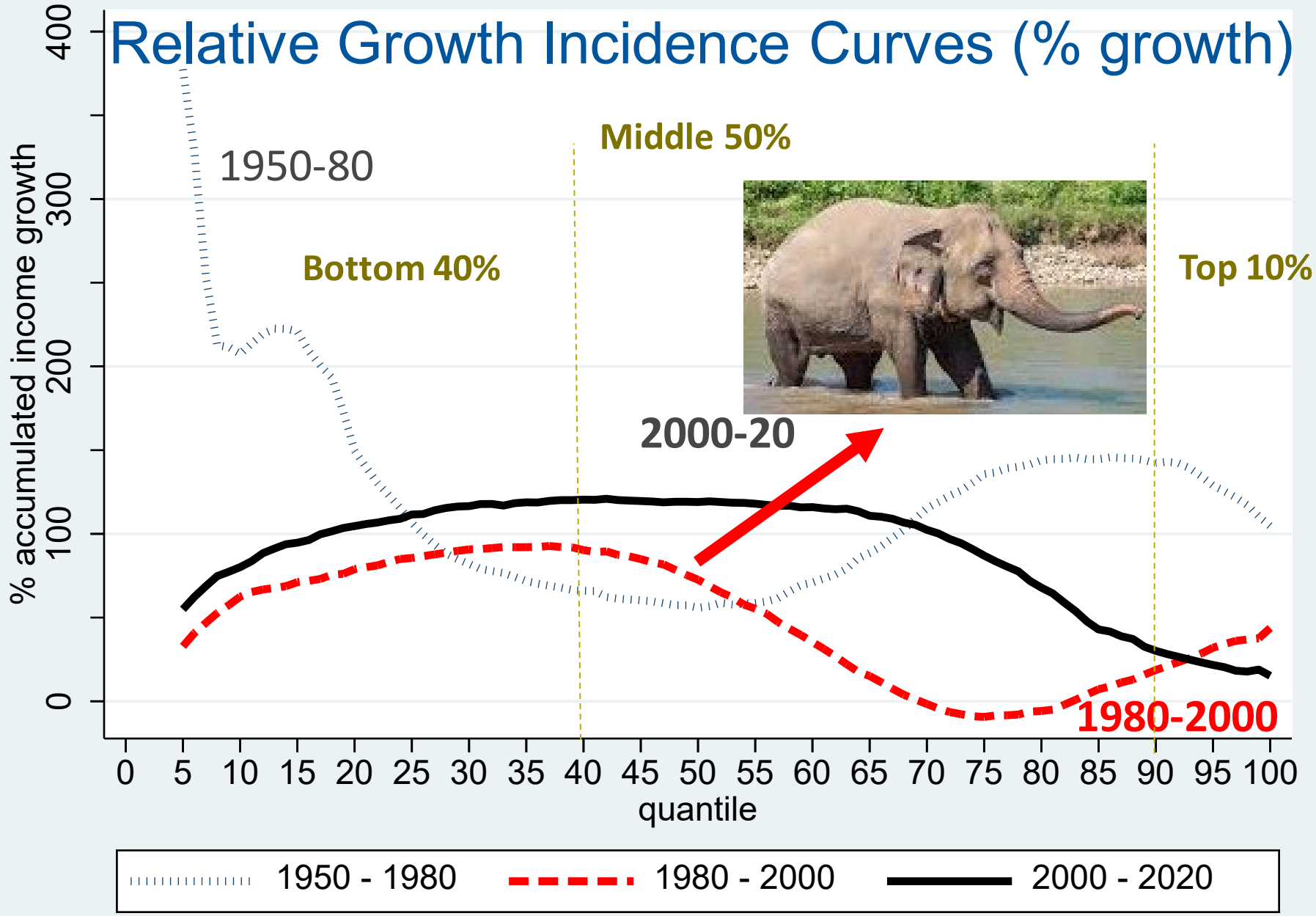
- **WIID:** UNU-WIDER
- **NRT:** Niño-Zarazúa, Roope and Tarp (2016)
- **AS:** Anand and Segal (2015)
- **WID:** World Inequality Lab



Trend in relative inequality

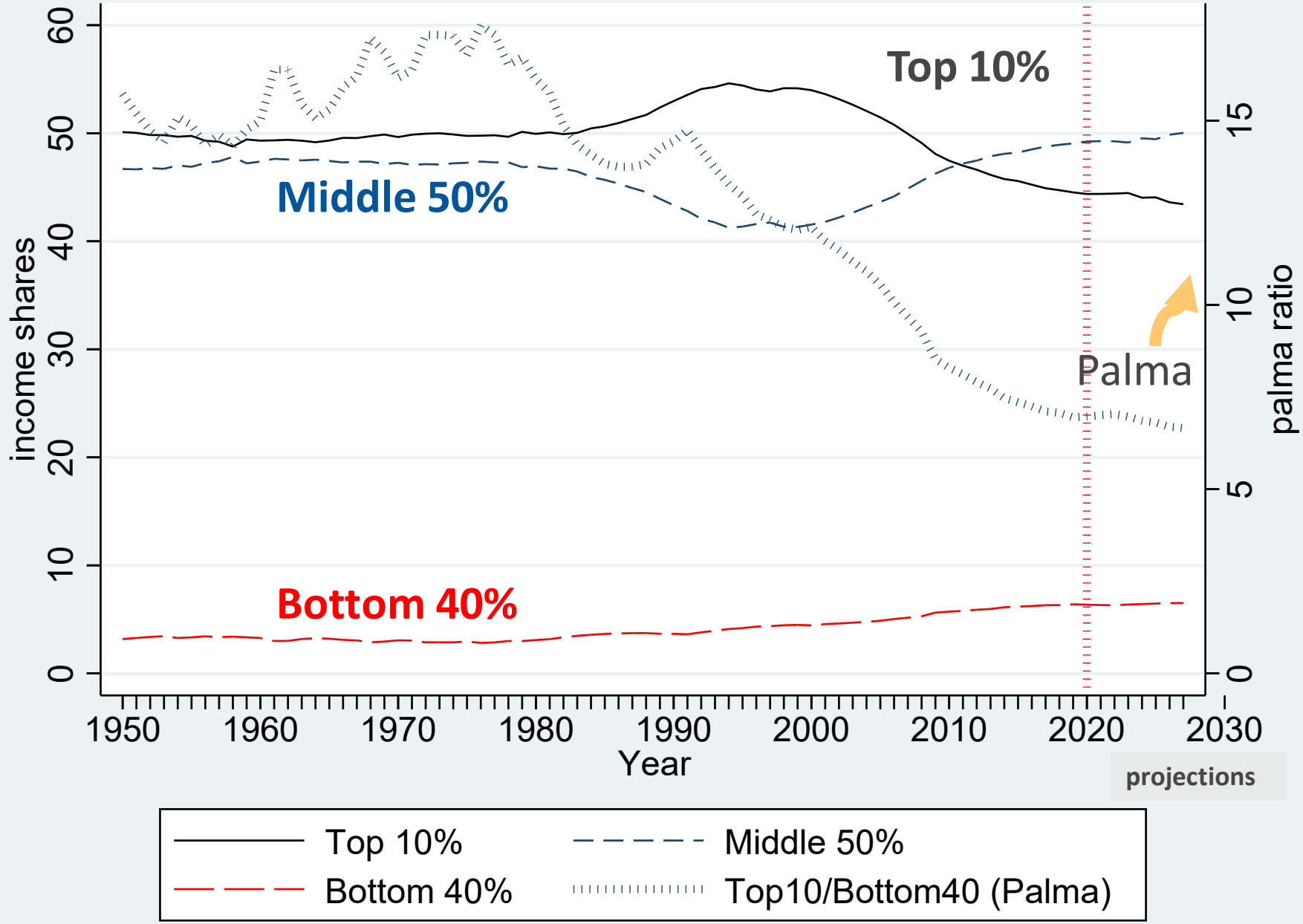
- ***Scale invariance***: higher **percentage growth** of lower incomes to reduce inequality.

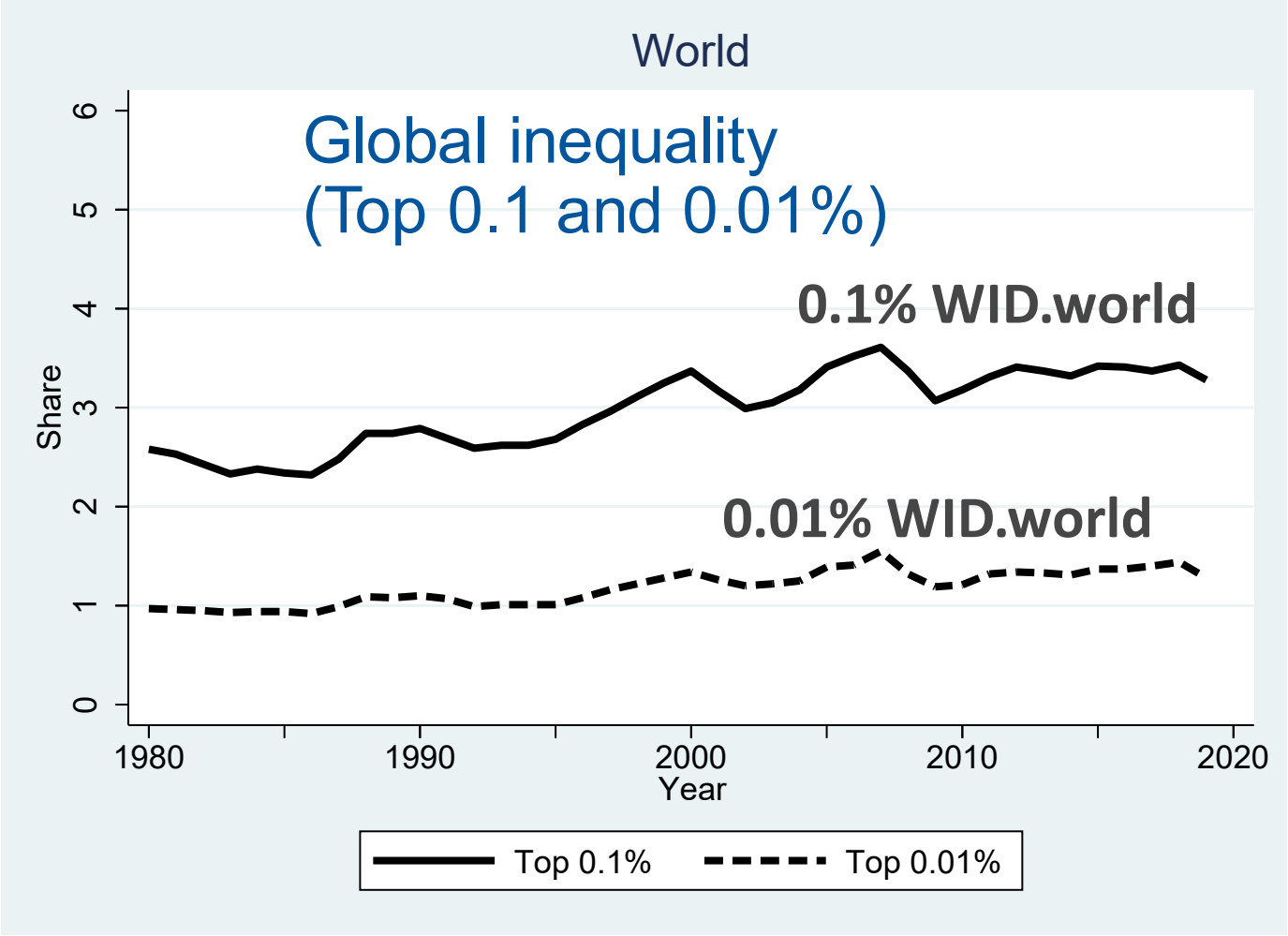
Relative Growth Incidence Curves (% growth)



Global inequality

Income shares and Palma ratio

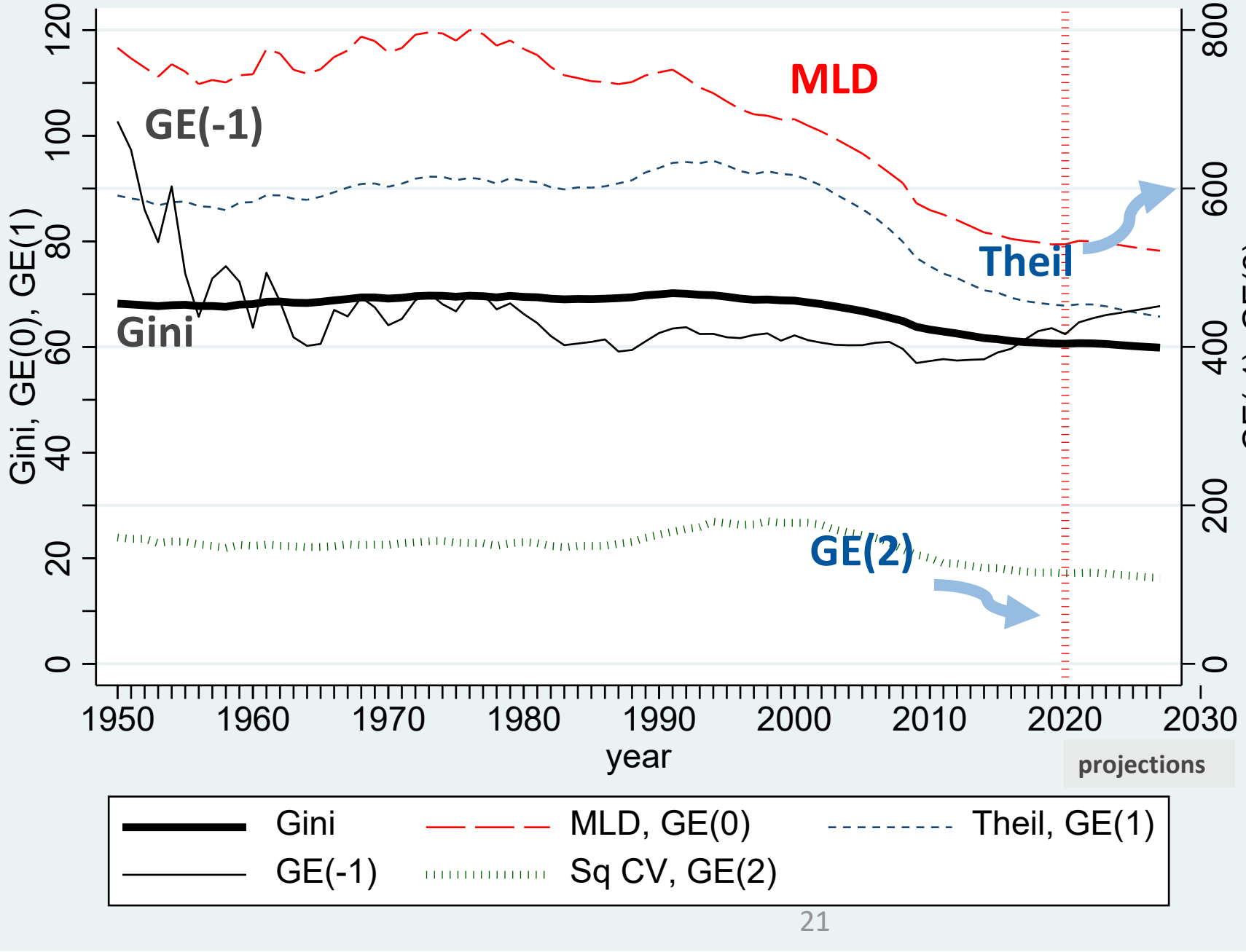




Top incomes WID (World Inequality Lab)

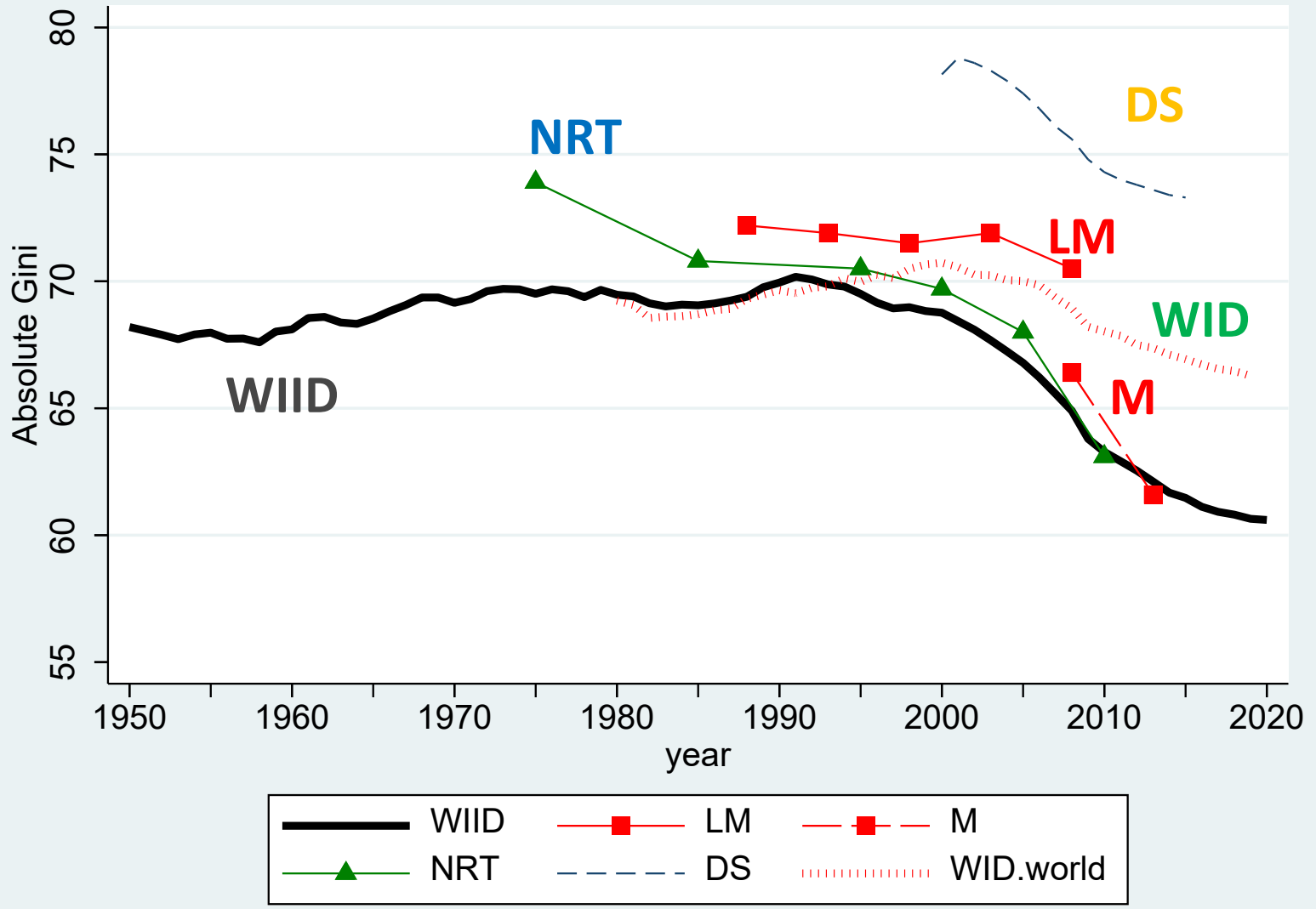
Indices

Exception (noisy): extreme sensitivity to the **very bottom** (e.g., GE_{-1})

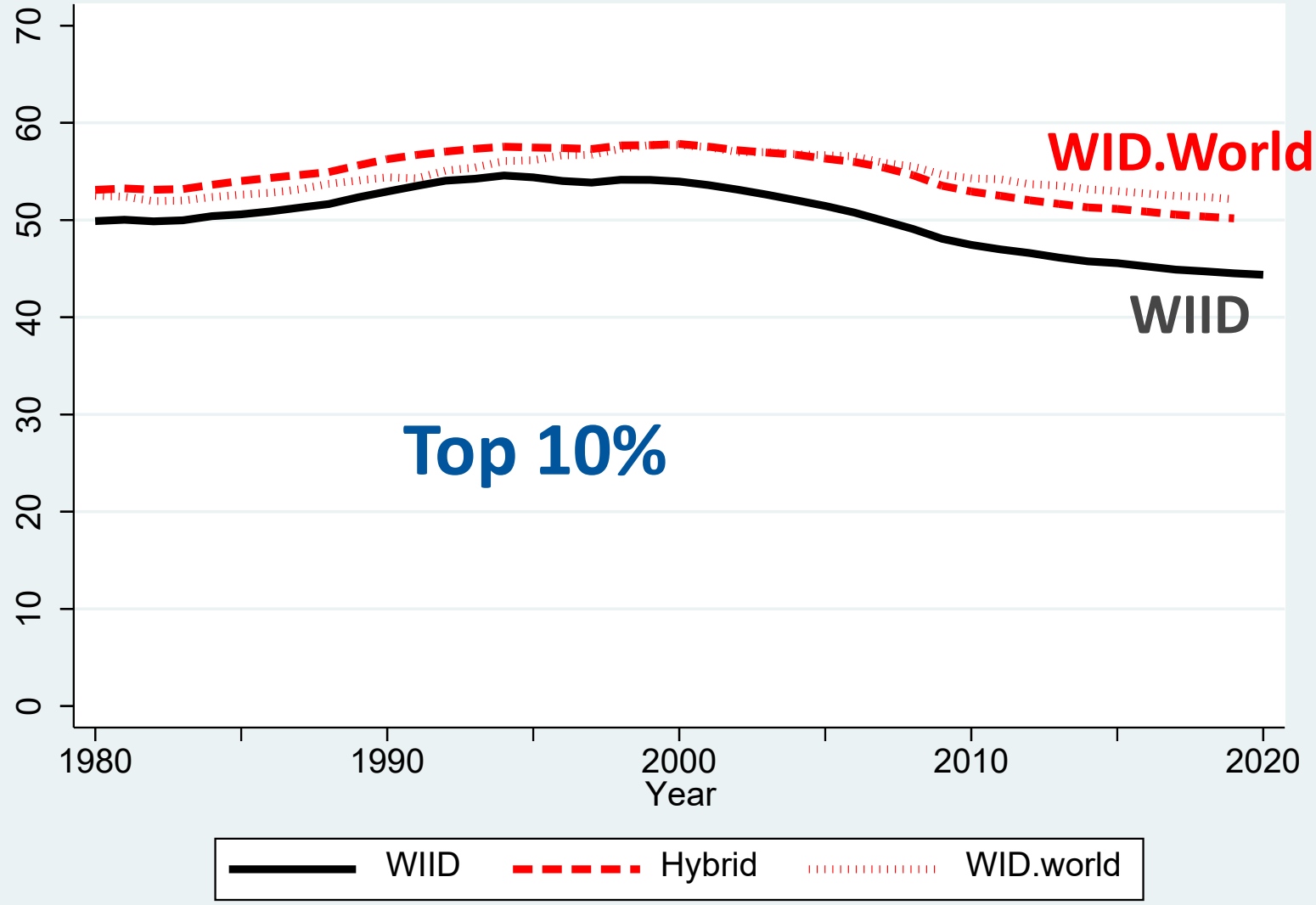


- **WIID:** UNU-WIDER
- **LM:** Lakner and Milanovic (2016) for 1988-2008;
- **M:** Milanovic (2021) for 2008-13
- **NRT:** Niño-Zarazúa, Roope and Tarp (2016) for 1970-2010
- **DS:** Davies and Shorrocks (2021)
- **WID:** World Inequality Lab

Gini



Correcting the WIID with WID top incomes

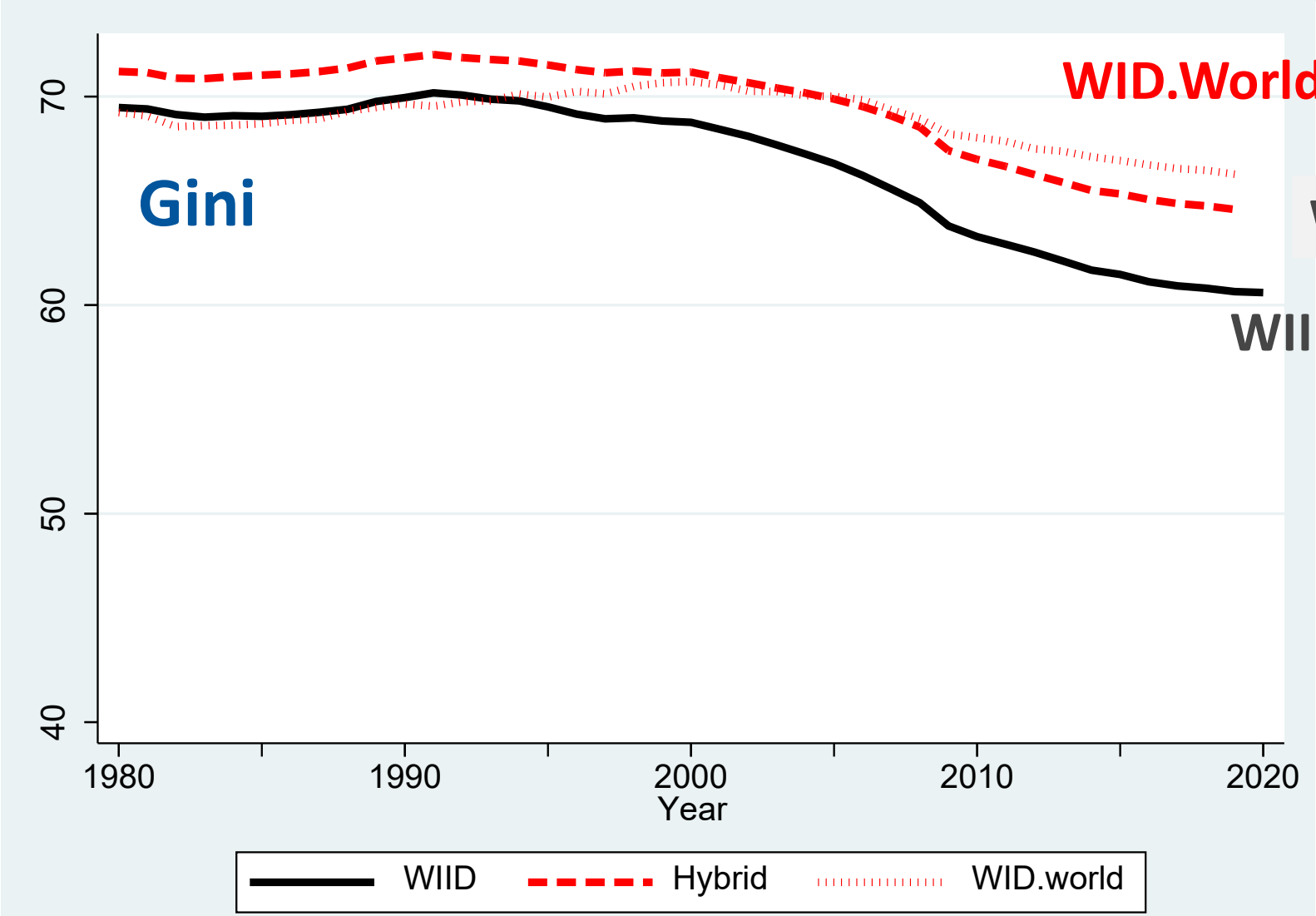


WIID + 1% WID

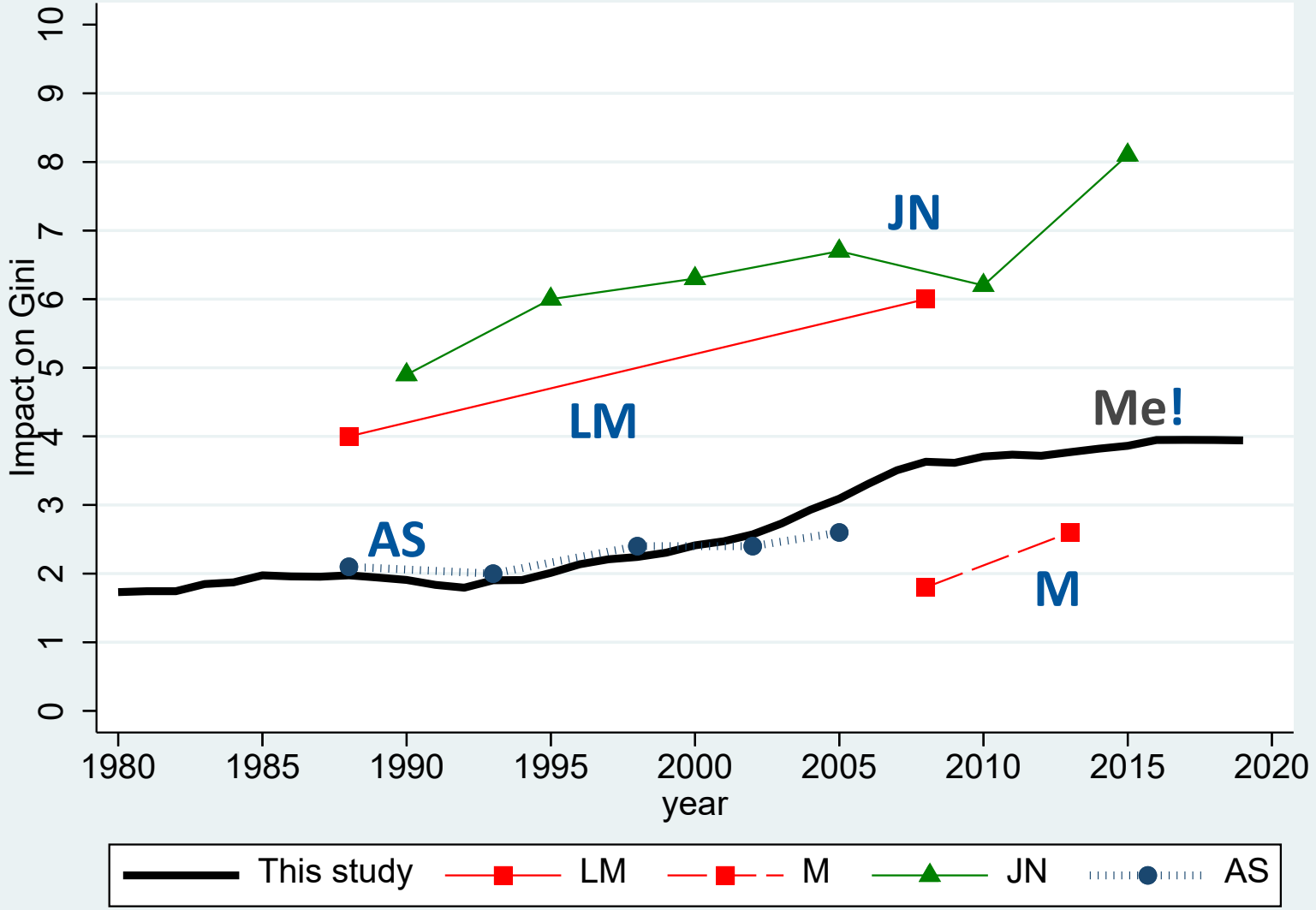
Hybrid distribution:

Replacing top 1% in each country (WIID)

by WID top1% estimates


WID.World
Gini
WIID + 1% WID
WIID
70
60
50
40
1980
1990
2000
2010
2020
Year
WIID
Hybrid
WID.world

- **This study**
- **AS:** Anand and Segal (2015)
- **LM:** Lakner and Milanovic (2016) for 1988-2008;
- **M:** Milanovic (2021) for 2008-13
- **JN:** Jordá and Niño-Zarazúa (2019)



Decomposition

- **Between countries:** after equalizing income within countries

(inequality in the distribution of country per capita income, with countries weighted by population)

- **Within countries:** after equalizing average income between countries.

(≅ population weighted sum of country inequality)

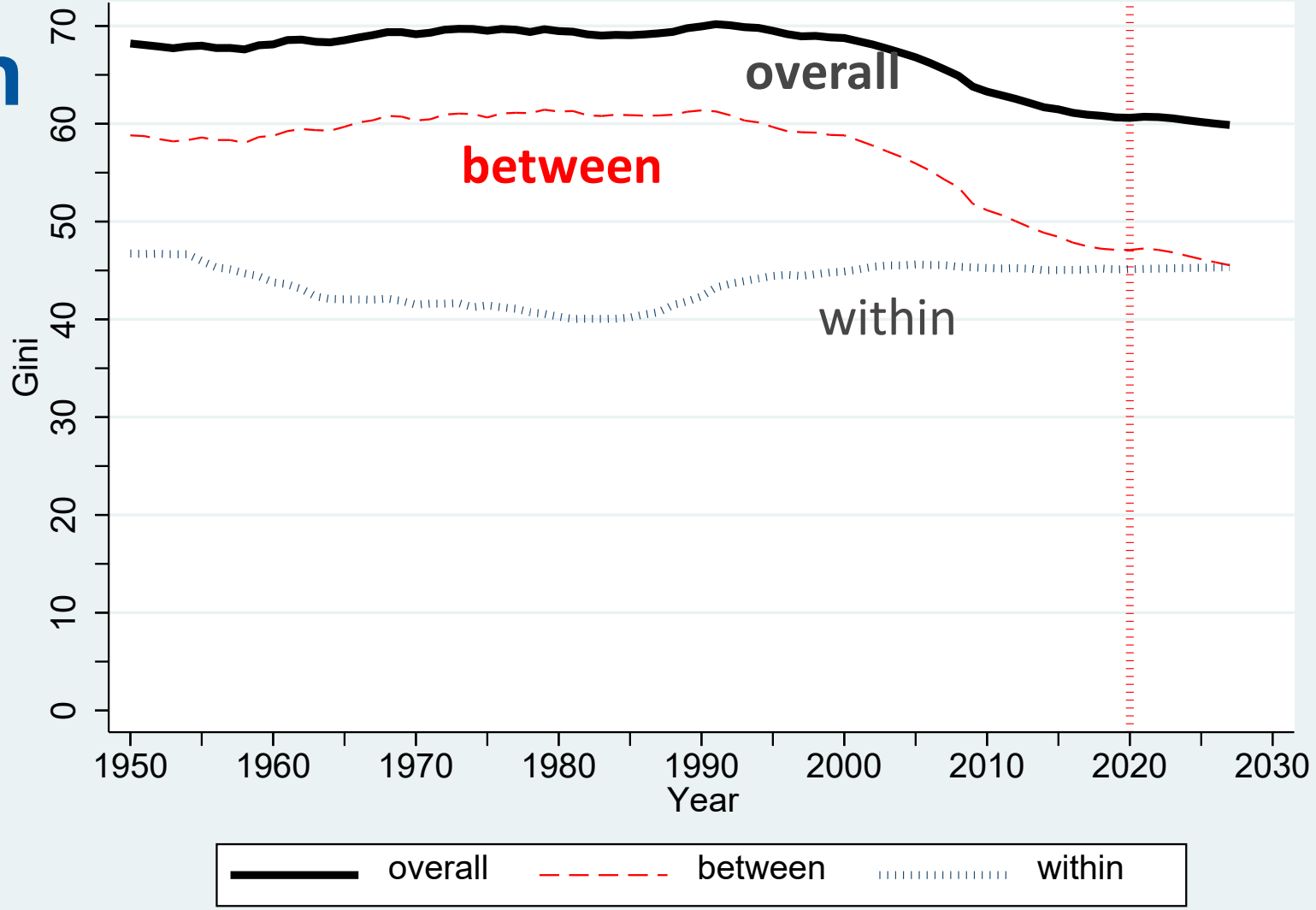
They add up to Overall inequality only with **MLD**

→ + **Shapley** share of between group inequality

Decomposition

Gini

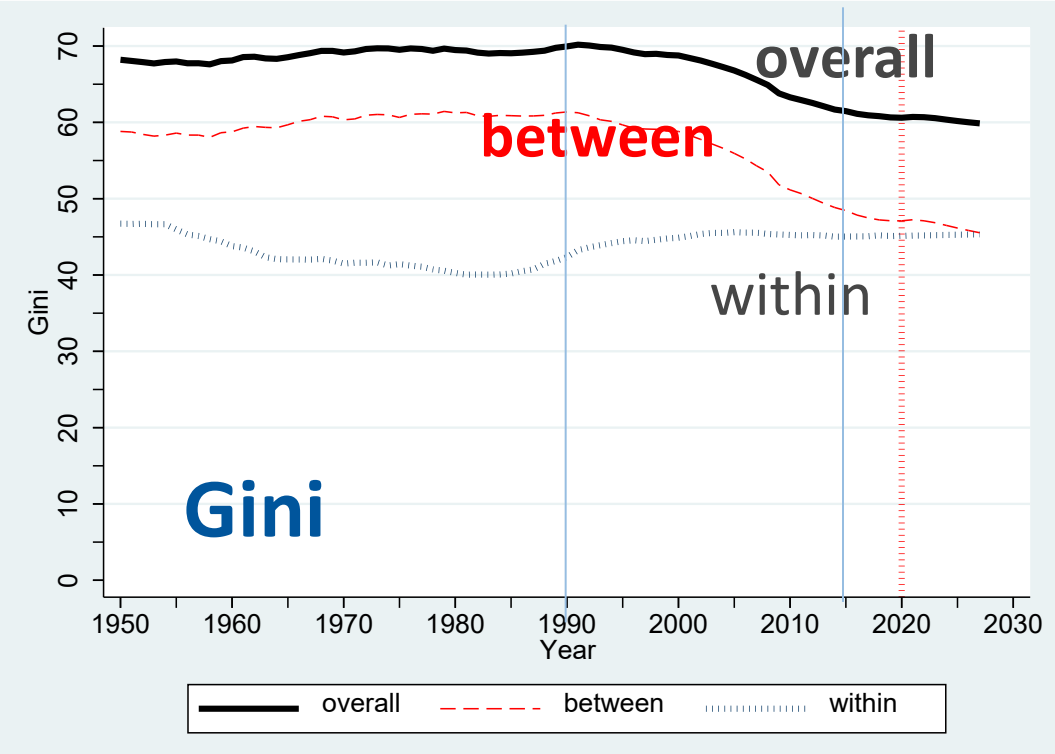
Within country (detailed analysis)
→ Gradín and Oppel (2021)



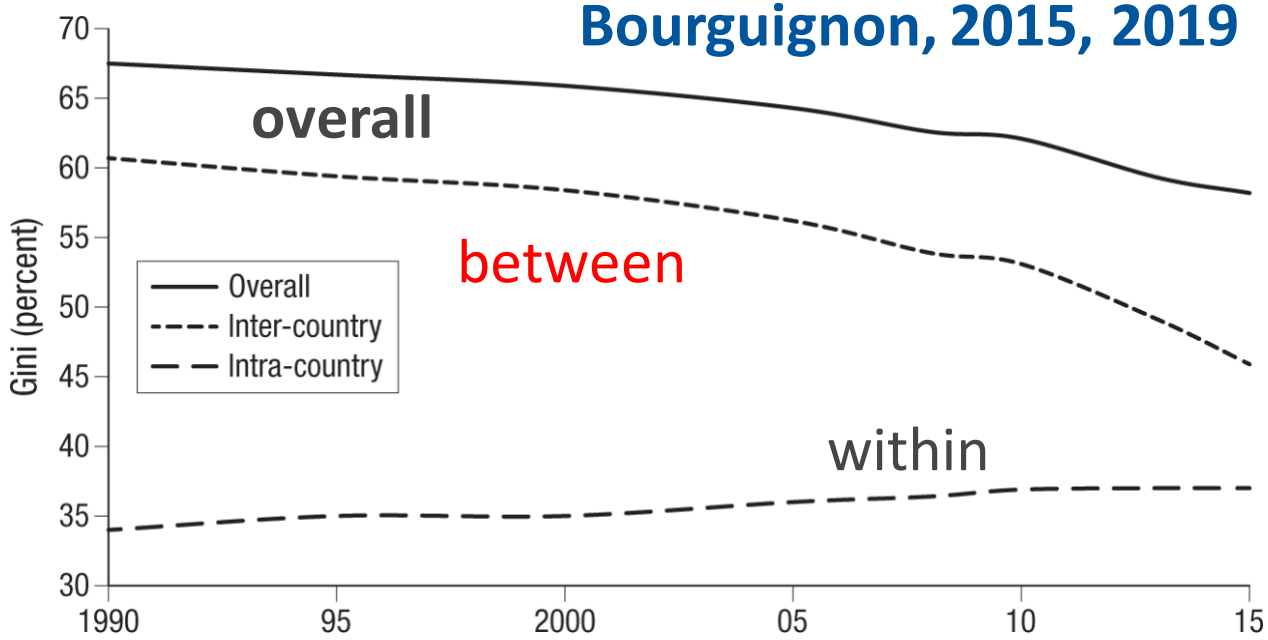
- Inequality trend is driven by **inequality between countries**,

  … (partially) offset by **inequality within countries**

Decomposition



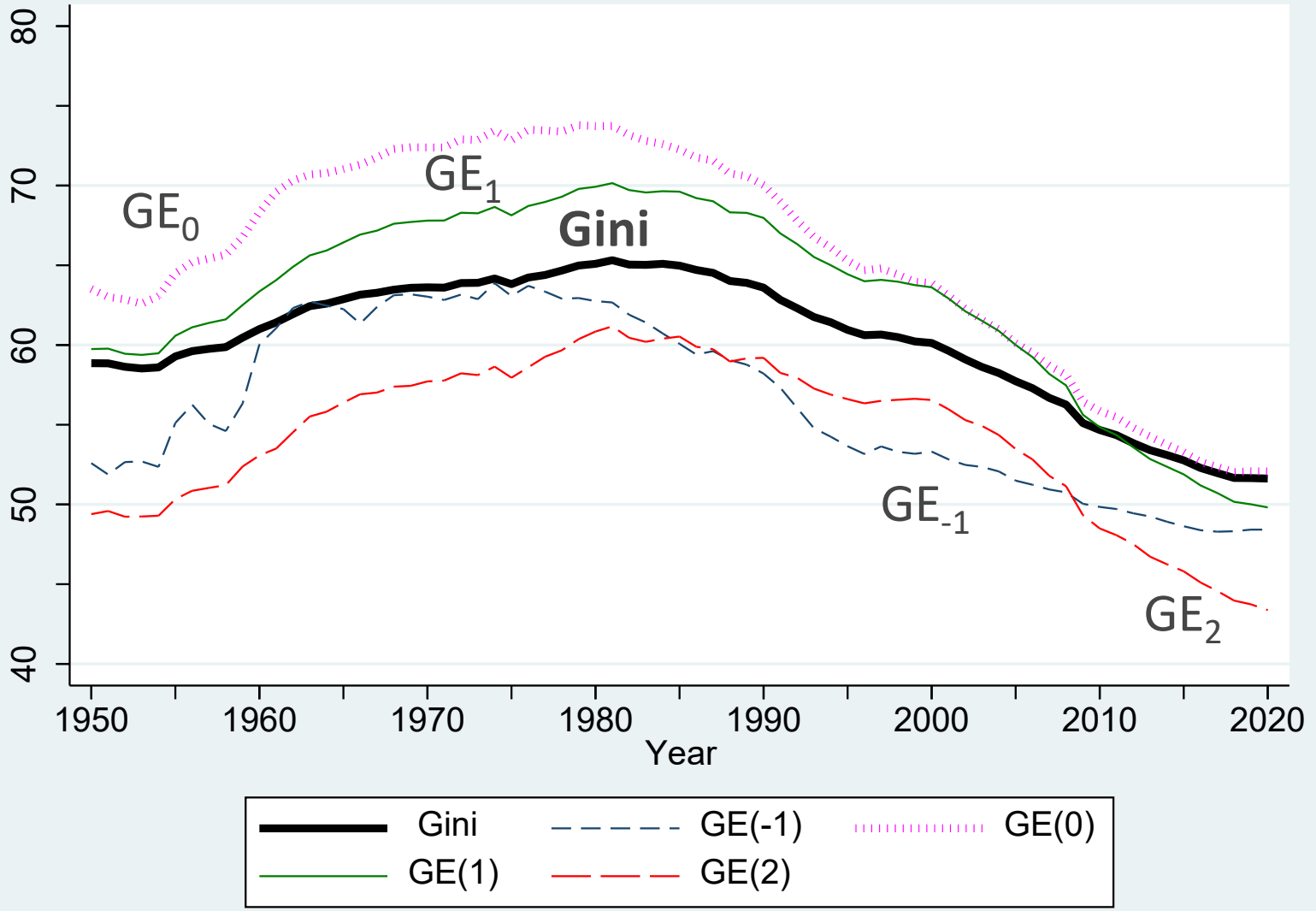
Bourguignon, 2015, 2019



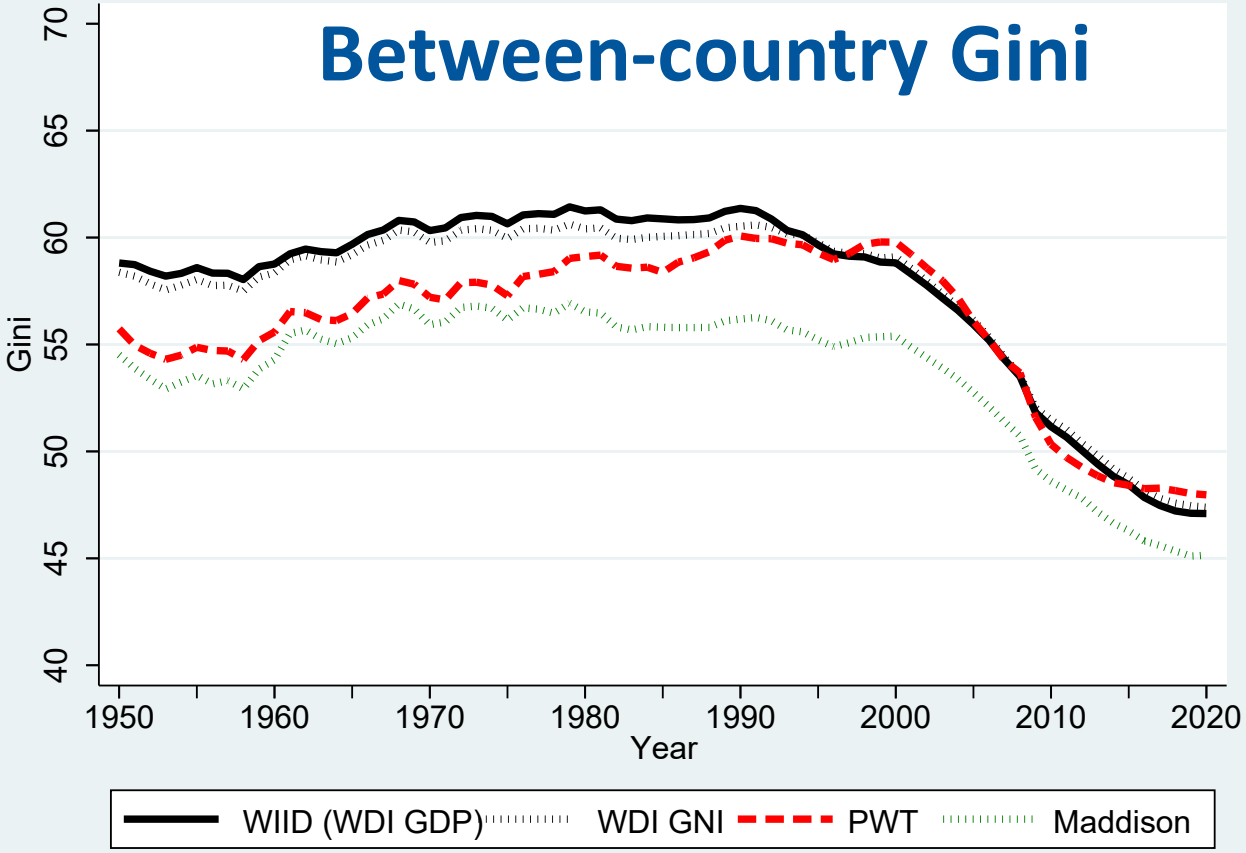
Inequality trend is driven by **inequality between countries**,

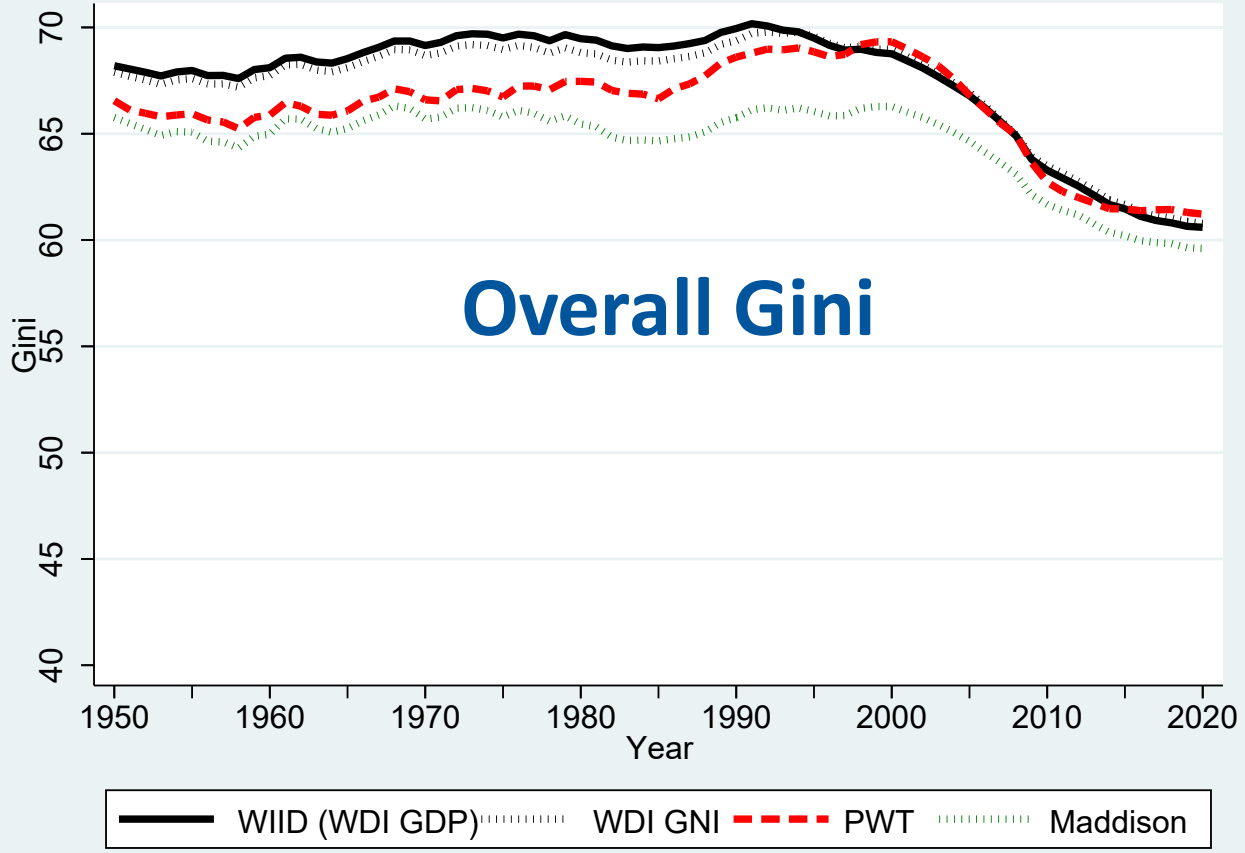
… (partially) offset by **inequality within countries**

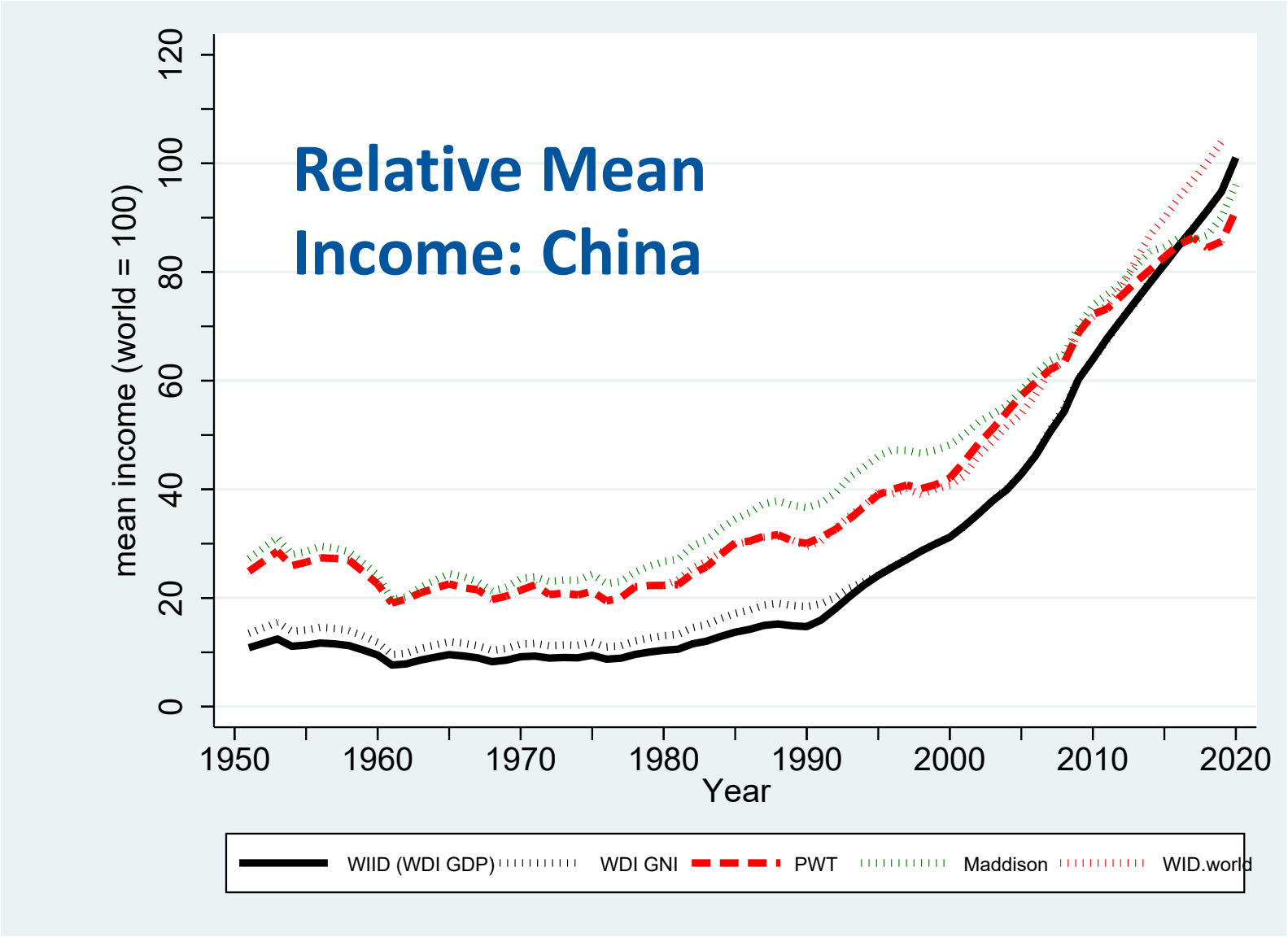
Between-country share of inequality (Shapley)

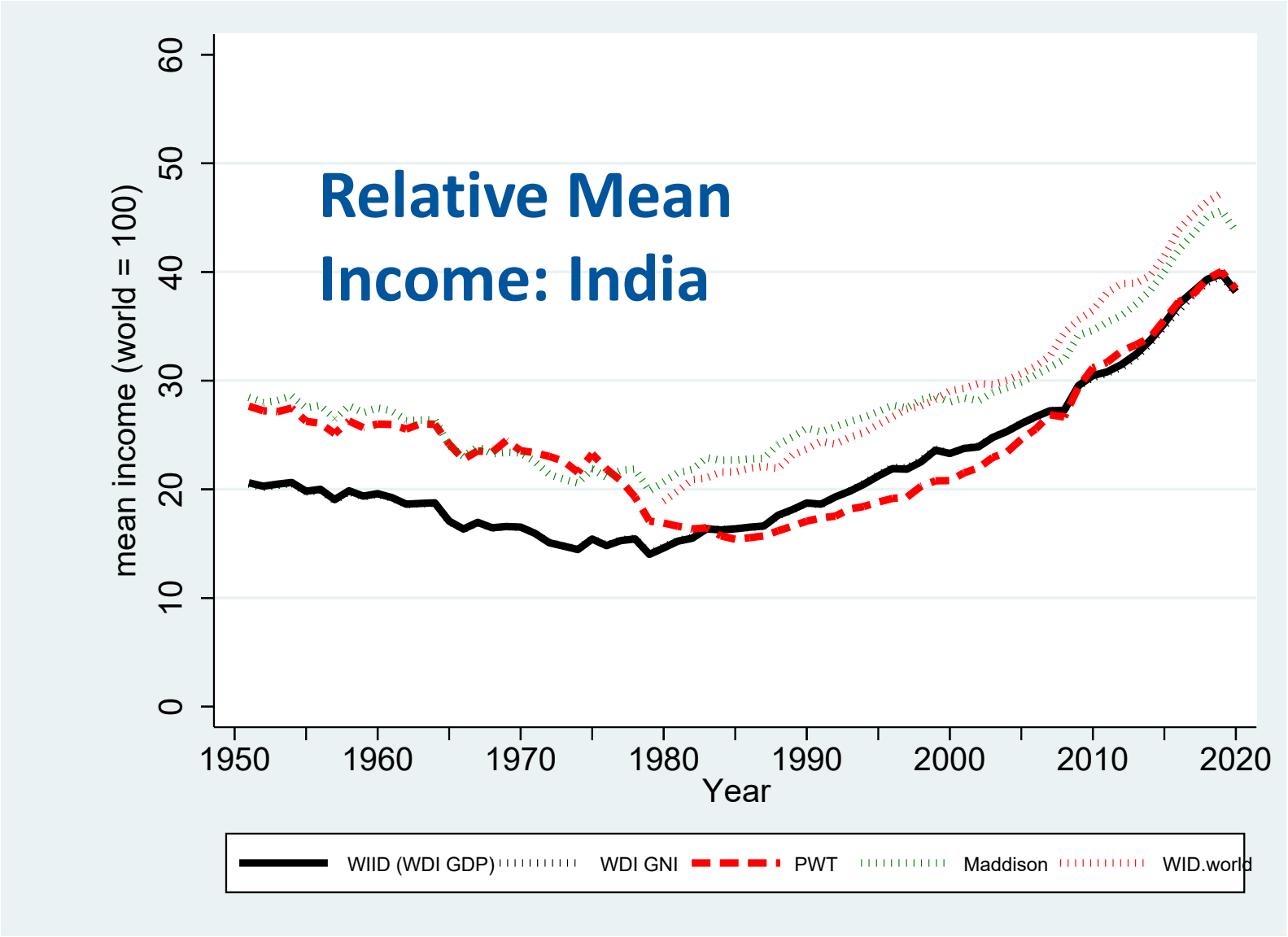


Robustness, average country income






Relative Mean Income: China
mean income (world = 100)
0
20
40
60
80
100
120
1950
1960
1970
1980
1990
2000
2010
2020
Year
WIID (WDI GDP)
WDI GNI
PWT
Maddison
WID.world


Relative Mean Income: India
mean income (world = 100)
0
10
20
30
40
50
60
1950
1960
1970
1980
1990
2000
2010
2020
Year
WIID (WDI GDP)
WDI GNI
PWT
Maddison
WID.world

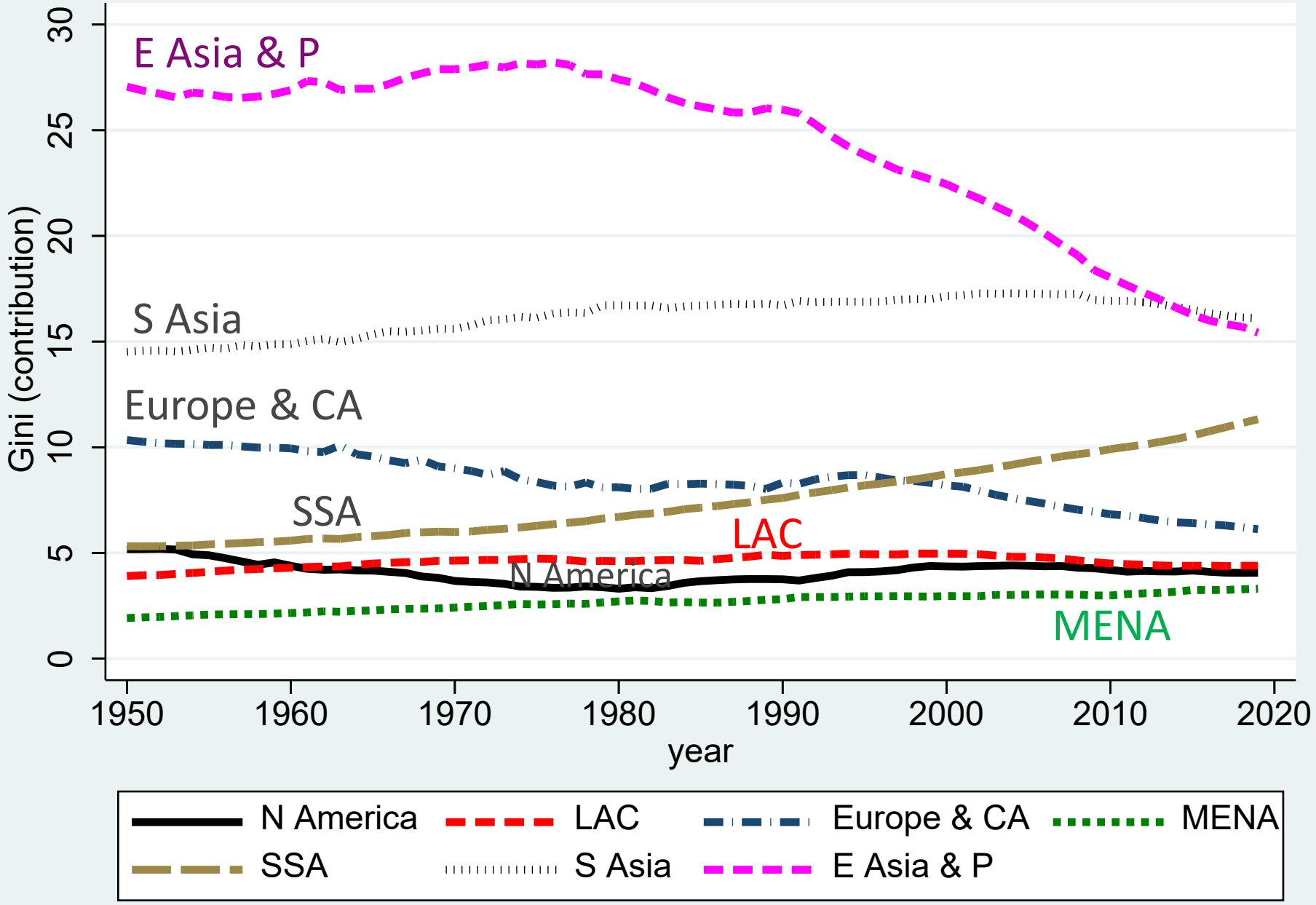
Country contributions to inequality

- **RIF Decomposition** (Gradín, 2020): Quantifying the contribution of a country or region to:
  - **Overall** inequality and its components:
    - Inequality **between countries**
    - Inequality **within countries**

Country contribution:
→ Sum of changes in inequality after marginally increasing the share of people at a specific income

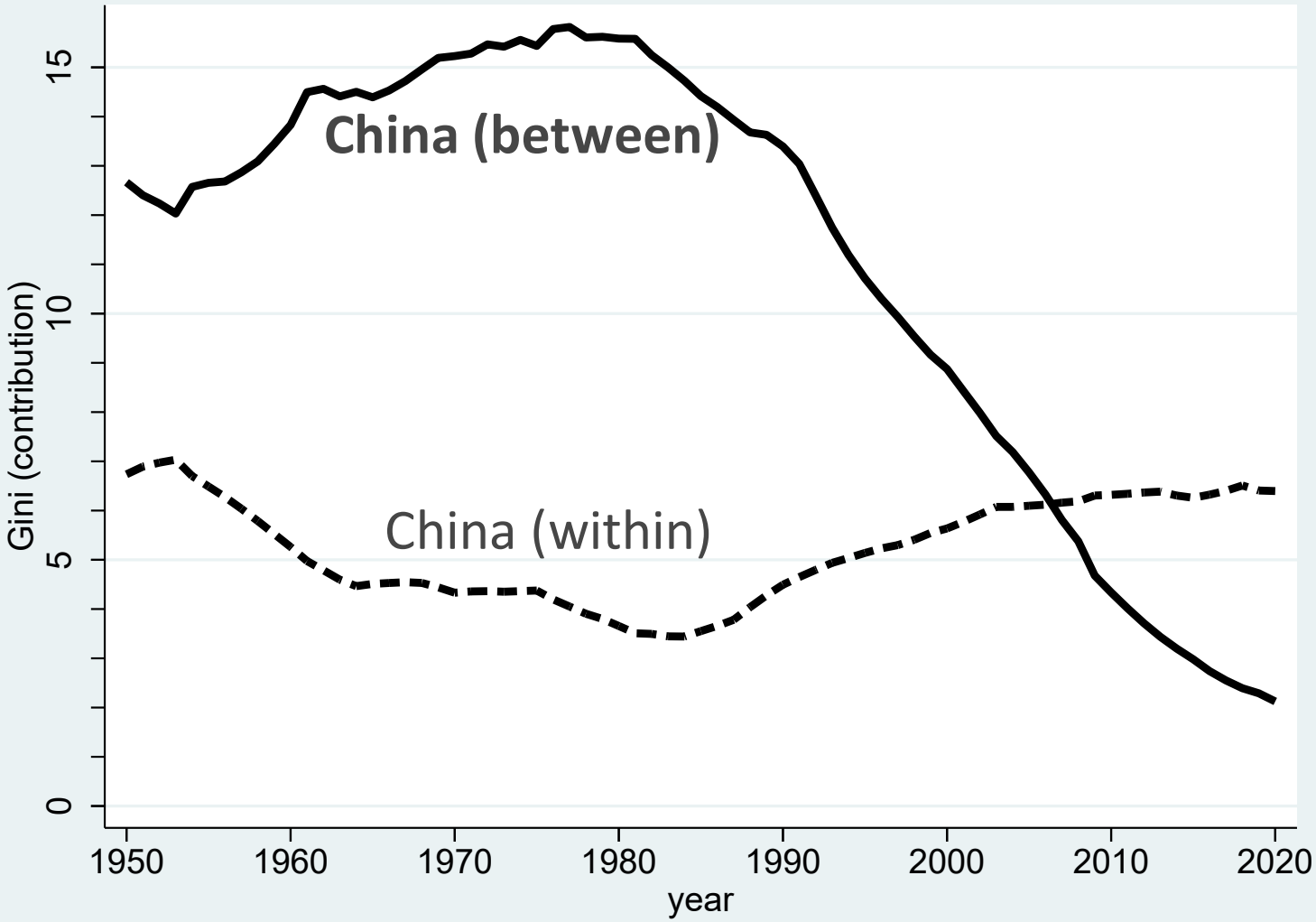
Contribution to global Gini by Region

(adding up to overall Gini)



Country contribution to Gini

(adding up to overall Gini)

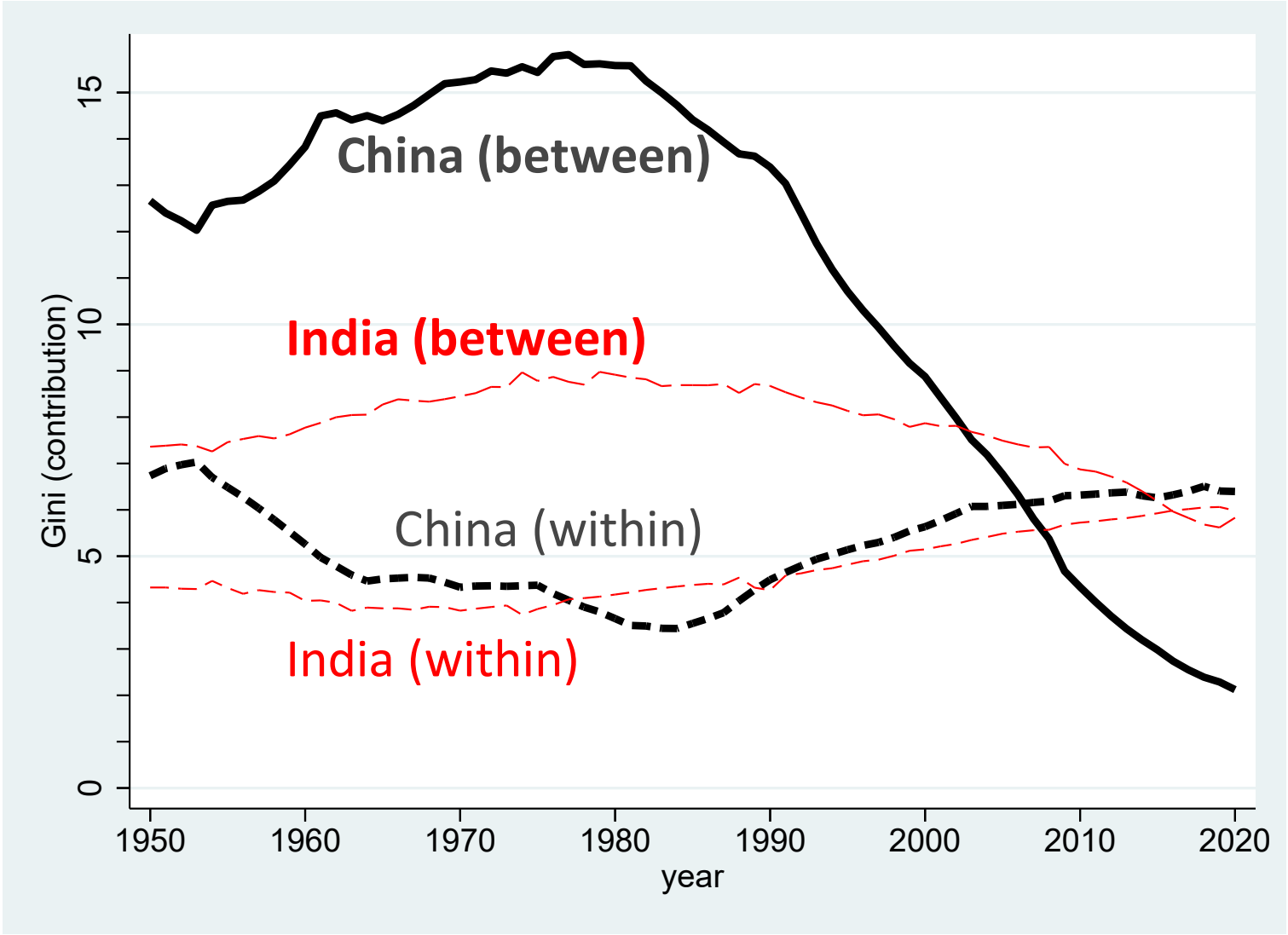


The **main trends** in global inequality (and BC + WC) can be largely explained by the economic evolution of China and, to a lesser extent, India.

Roles of BC and WC reversed → changing the overall trend.

Country contribution to Gini

(adding up to overall Gini)



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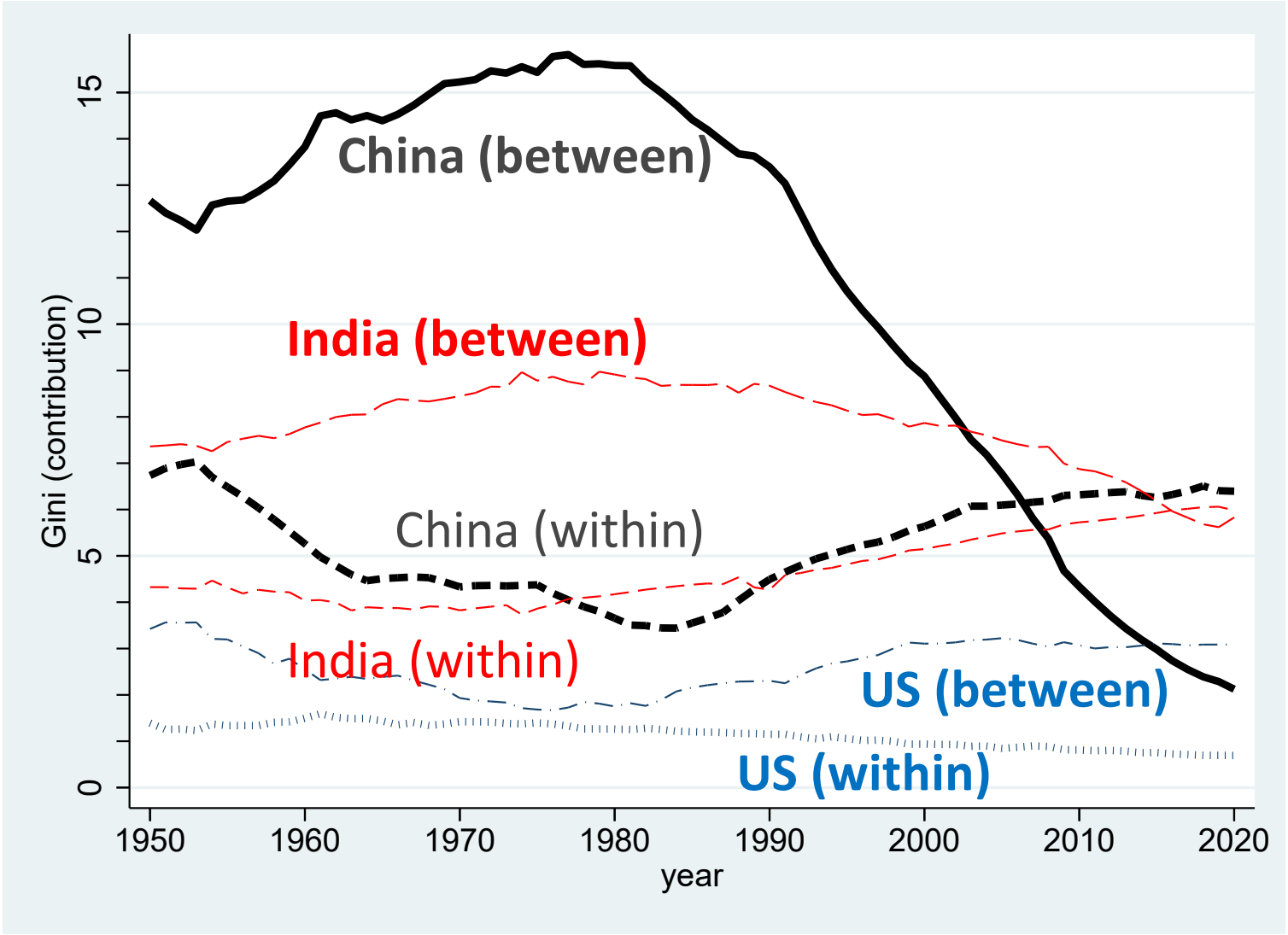


The **main trends** in global inequality (and BC + WC) can be largely explained by the economic evolution of China and, to a lesser extent, India.

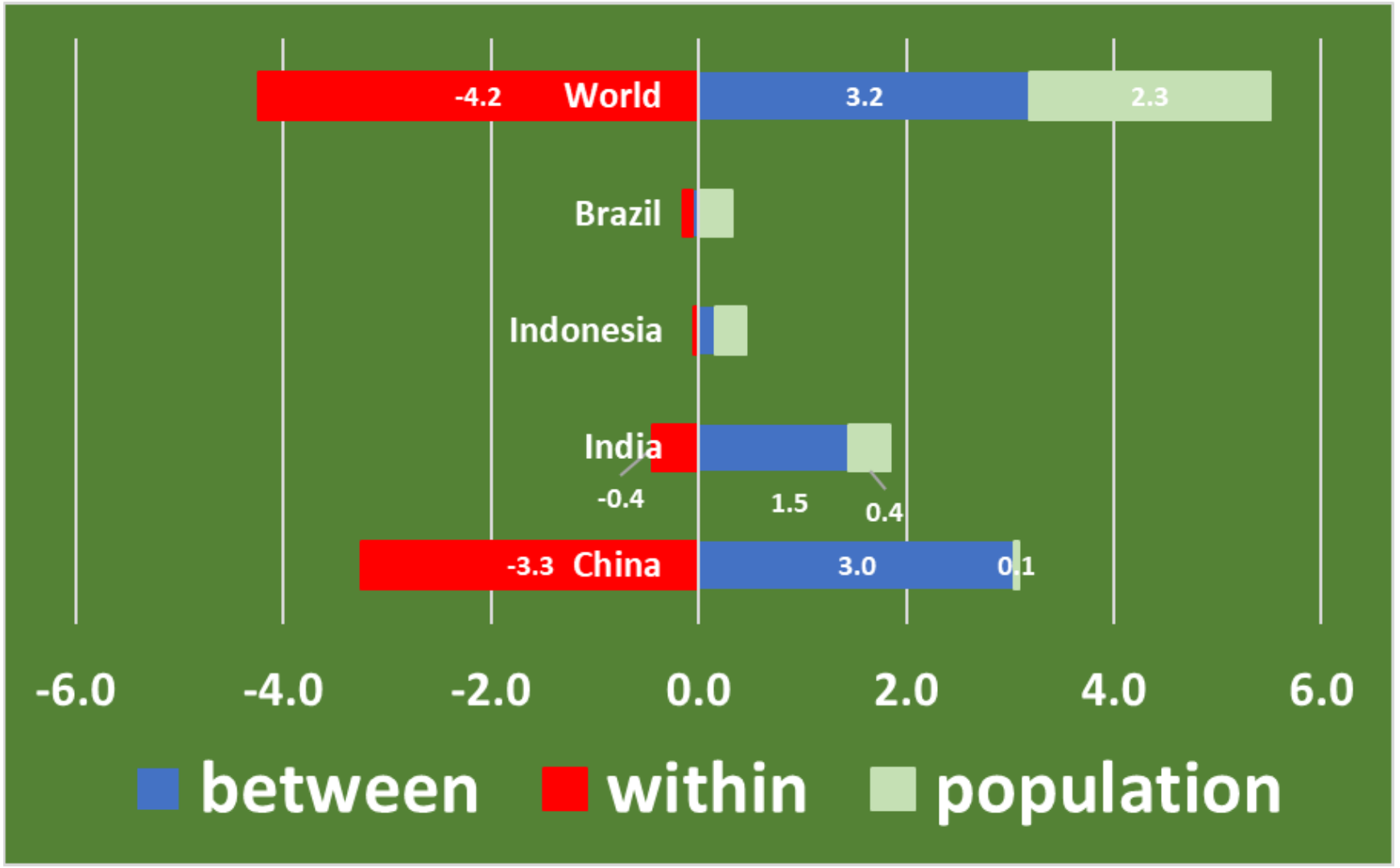
Roles of BC and WC reversed → changing the overall trend.

Country contributions to inequality trend

- **Decomposition** (OB-type based on the RIF): Quantifying the contribution of a country or region to the change in **overall** inequality through … :
  - Inequality **between countries** (with constant population).
  - Inequality **within countries** (with constant population).
  - **Population growth** (with constant income distributions).

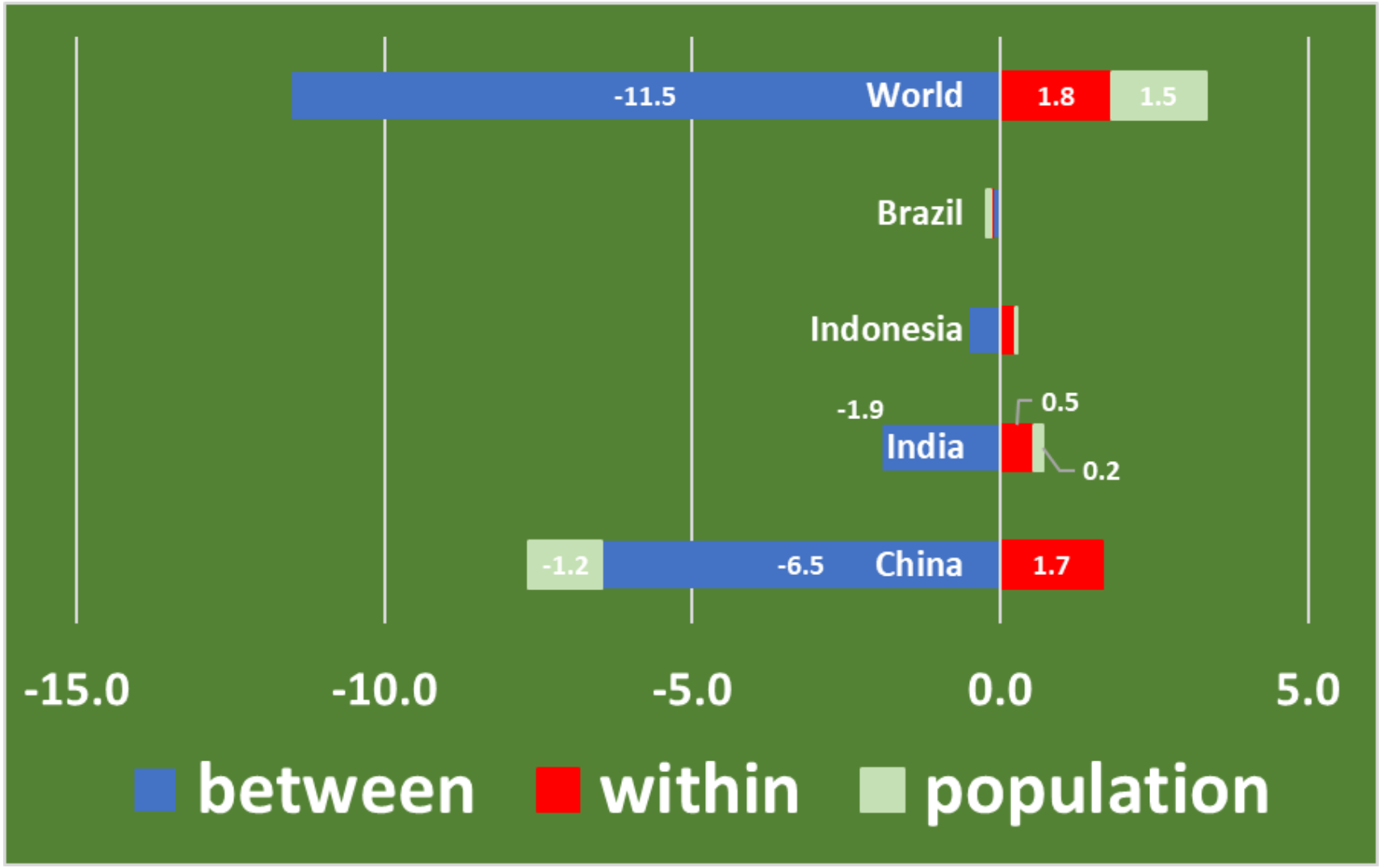
Contribution to Gini change by component and country 1950-80

Increase:
1.3 Gini points



Contribution to Gini change by component and country 2000-20

Fall:
-8.2 Gini points



Country contributions

- **Other factors**:
  - Contribution of former socialist **E Europe** during the transition
  - **Diverging inequality trends** in various regions in recent years.
  - Impact of faster **population growth** in Sub-Saharan African region.

Concluding remarks

- Work-in-progress **global inequality database** that reflects trends as they would be obtained from standardized household survey.
  - Help **monitoring** inequality trends and drivers in a transparent and flexible way,

  → Not imposing a particular inequality approach (relative and absolute; entire distribution and measures with different sensitivity).
  - **Robustness**:

  → Alternative approaches to country per capita living standards: key for the 1980s and 1990s.

  → Correction of top incomes: higher inequality, similar trend (except very top).

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THANKS!!!!!